

NUTS region(s) concerned by the strategy/action plan (relevant NUTS level)

# TEMPLATE

## Output factsheet: Strategies and action plans

Version 1

<b>Project index number and acronym</b>	CE1125 CIRCE2020
<b>Lead partner</b>	ARPAV - Regional Agency for Environmental Protection and Prevention of Veneto
<b>Output number and title</b>	OT2.4 Circular economy business models supporting cross value chain by-products remanufacturing
<b>Responsible partner (PP name and number)</b>	PP4 IFKA Public Benefit Non-profit Ltd. for the Development of Industry
<b>Project website</b>	<a href="https://www.interreg-central.eu/Content.Node/CIRCE2020.html">https://www.interreg-central.eu/Content.Node/CIRCE2020.html</a>
<b>Delivery date</b>	09.2019

### Summary description of the strategy/action plan (developed and/or implemented)

In case of plastic composite waste (which contains PE, PP, PET, aPET, PVC, EVA and PA), the aim of the CE solution implementation is to produce valuable and usable products from the waste. Based on the interviews and negotiations with the waste producer company with the alternative treatment option they would like to decrease the dependency now they have to experience. Now the company depends on the free capacities of only 2 incinerator companies, which is also a huge risk for the company. One possible recipient recycler company's products are produced by efficient recycling of municipal and industrial plastic waste. The shredded multilayer plastic - after the melting and moulding process - can be utilized, the main products are fence strips, lining edges and sidewalks, lathes, patio and staircases, building profiles, slats etc. The other recycler company also can produce valuable products from the waste after processing: switchboards, enclosures. The CE solutions are supported by the TRM, LCA and LCC analyses.

In case of the second material, the main waste stream is the by-products and remaining materials of the tyre production (other rubber waste): it contains vulcanized and unvulcanized rubber residues in form of irregular shape. Currently the waste rubber goes to the incineration and during the treatment process electricity is generated. The first step of CE solution is to making shredded rubber pieces, as multipurpose raw material. Instead of energy recovery, rubber residues can be used as a granulate in the following processes: (1) raw material into roadbed to optimize the quality of bitumen; (2) use of the waste tires and residues in cement industry - possibility of co-incineration; (3) rubber brick production; (4) devulcanization. Other possible solution is in connection with incineration to increase the efficiency. At the moment during the incineration they just produce electricity and do not utilize the heat energy.

The Hungarian pilot area, the Tatabánya Industrial Park is situated in the Central Transdanubian region. It is approximately 450 ha, out of which one third belongs to the public administration of Tatabánya and two thirds to Környe. Based on its area it is one of the largest industrial parks in Hungary. The area is characterized by the diverse variety of companies which are operating in the area, such as automotive, plastic industry, rubber industry, electronics, healthcare and logistic companies.

Max. 500 characters

### Expected impact and benefits of the strategy/action plan for the concerned territories and target groups

Plastic composite waste: the main expected results are the followings: (1) reduce the waste amount that goes to incineration - aim is the whole: yearly 4200 t; (2) resource efficiency increase and cost reduction to both parties; (3) less environmental effect; (4) avoided technological problems during incineration.

Tire waste: the main expected results are the followings: (1) recycling instead of incineration; (2) less distance and cost of transport - reduced environmental impact; (3) avoided technical problems during incineration. Incineration - as a BaU version - is not cost effective and sustainable in long-term nowadays due to the big CO2 emission quota. In this respect an alternative solution would be better in the future. Or another opportunity to utilize the heat energy within the incineration process.

Max. 1.000 characters

### Sustainability of the developed or implemented strategy/action plan and its transferability to other territories and stakeholders

Plastic composite waste: the producer company is committed to the environment issues and they also have several factories in Europe, the mother company works in Denmark. Currently the waste is incinerated by all of them. So if we will find an effective alternative solution it would be implemented in other countries to reduce the waste amount. Due to the complexity of the composition and because of the quantity it is quite a challenge to identify producers who can deal with this material. The aim is to develop a continuous, long-term and sustainable relation in this respect.

Tire waste: Hungary hosts the most outstanding tire manufacturers within its territory generating a huge sum of vulcanized and unvulcanized tire waste during production, so it would be more interested to have a special solution for tire manufacturers. Using rubber granulate into road construction is not just a waste handling method, but an alternative solution for improving the durability of asphalt pavements compared to roads made of conventional bitumen.

Max. 1000 characters

### Lessons learned from the development/implementation process of the strategy/action

## plan and added value of transnational cooperation

Cooperation between industry representatives represents the greatest challenge for the implementation and therefore raising awareness on the benefits of circular economy and this shall be considered - along with the other case studies - as a precondition for the expansion of the case studies and for further development of the concepts by interested stakeholders. Transnational cooperation, that includes the application of the interpolated set of transnational-based analytic tools such as LCA and LCC methods as well the joint matrix for the business plan, has enabled knowledge exchange and provided insight into best practices to address different challenges of circular economy.

With special reference to the Hungarian case studies:

Plastic composite waste: (1) PVC content is problematic because of the chlorine and the company cannot substitute it; (2) PE is also can cause problem in the recycling because PE has several molecule form within plastic composite waste. (3) We should find a solution for a huge amount of waste (4200 t/y). (4) Continuous utilization process is needed.

Tire waste: (1) it is very hard to find a company that cooperate with us, because they are afraid of giving data for an another company; (2) the cooperation and implementation of CE solution is a slow process because of the careful donor company management; (3) they would like if we found a complex solution for all of the waste material handling that are going to incineration at the moment. These are not just only rubber residues. There is also a technological challenge what we need to answer.

## References to relevant deliverables and web-links

If applicable, pictures or images to be provided as annex

<https://www.circe2020-wiki.eu/>

[https://ifka.hu/en/article/green\\_economy/projects/69](https://ifka.hu/en/article/green_economy/projects/69)

<https://ifka.hu/en/article/CIRCE2020-projekt-bemutatas>

Annex:

Composite plastic waste:



Tire and vulcanized and unvulcanised rubber waste residues:

